

Work Order ID 161822

Tuesday, May 23, 2017 10:55:43 AM

161822

Page 1

Item ID: D412-742-043

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Repl. Skidtube Fits LH or RH, High Gear, DART (Apical) Tri-Bag Float Comp.

Start Date: 6/13/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/15/2017 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: 

Date: MAY 23 2017

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D3391

J

100

Document Control

0.00

100

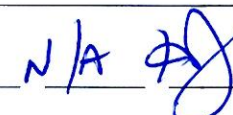
DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

If D412-742-043 is a W/O on it's own,
Photocopy bluefile and create labels per PPP D412-742-043 CHG007

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER : ☐			

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Required Date: 6/15/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110	Assemble as per dwg	0.00							
110	HandFinishing								
Hand Finish									
Hand Finishing									
	Memo	1.89							
	1-Install tubes together and seal them all the way around using Sikaflex 241/291. Ensure tube ends line-up with saddle holes for proper alignment. using 7/16" "T" Pins. A/RSikaflex-241/-291 <u>M137946</u> Expiry date: <u>1803</u>								
	2-Install wearplates as per Dwg D3391. Ensure that plastic washers are against wearplate, then topped with the SS washer. Seal all bolts with sikaflex except ones with inserts on inside of tube ,hand tighten only bolts with no sikaflex. A/RSikaflex-241/-291 <u>M137946</u> Expiry date: <u>1803</u>								
	3-Remove "T" pins once sikaflex is dry.								
	4-Coat all exposed hardware with LPS Procyon. Remove any excess off with MEK degreaser. A/RLPS Procyon <u>M133690</u>								
	VERIFY FWD AND AFT SADDLE FIT DURING ASSEMBLY BY: <u>DAS</u> <u>9</u> DATE: <u>9-89</u>								

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Skid-tube ☐ Cross tube ☐ Water Jet ☐ Engineering ☐ Scrap ☐ Machining ☐ Small Fab ☐ Prod. Eng. Coord. ☐ Quality ☐ Use-as-is ☐ Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ Suspected Unapproved ☐ Large Fab ☐ Composite ☐ Supplier ☐	AGAINST DEPARTMENT/PROCESS			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

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Reference:

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Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC5- Inspect part completeness to step on W/O	0.00							
120									
QC	Memo	0.02							DAS 9-89
Quality Control									
130	Identify as per dwg & Stock Location: _____	0.00							
130	Packaging								
Packaging	Memo	0.00							Smb 17/8/8
Packaging	Identify and pack for shipping as per PPP D412-742-043								
	Location: _____								
	PPP Rev: _____								PPP161830
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.10							17/9/13
Quality Control									

DAS
21
9-89

UM SEP 18 2017

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Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐				
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OTHER : ☐						

Picklist Print

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Page 1

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161822

Parent Item: D412-742-043

D412-742-043

Parent Item Name: Repl. Skidtube Fits LH or RH, High Gear, DART (Apical) Tri-Bag Float Comp.

Start Date: 6/13/2017

Required Date: 6/15/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev A 05.10.13 New Issue KJ/JLM
 IPP Rev 06.02.13 ECN 773 dwg @ rev.D EC
 IPP Rev:C 07-05-28 As per Rev F JLM
 IPP Rev:D 07-12-04 ECN 1072 DD verified by:JLM
 IPP Rev:E 08-09-08 ecn 08-510 DD verified by:EC IPP Rev:F
 11.11.01 as per DSI9517 REV.B DD verified by:EC IPP REV:G 16.05.02
 AS PER DWG REV.J DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

AN5C7A		Purchased	No			110	Each	147.0000	10	10			
AN5C7A													
BOLT													

Location	Loc Qty	Loc Code
FG	2	
19185	2	
FP001	67	
m131139	1	
m131320	32	
m132930	24	
m136450	10	
ST338	78	
m132123	10	
m136450	18	
<u>m137507</u>	50	

D3391-021		Manufactured	No			110	Each	1.0000	1	1			
D3391-021													
Fwd Tube Assembly													

Location	Loc Qty	Loc Code
FG039	1	
147918	1	

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WORK ORDER NON-CONFORMANCE / UPDATE



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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

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Parent Item: D412-742-043

D412-742-043

Parent Item Name: Repl. Skidtube Fits LH or RH, High Gear, DART (Apical) Tri-Bag Float Comp.

Start Date: 6/13/2017

Required Date: 6/15/2017

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0532R

Purchased

No

110

Each

201.0000

10

10

NAS1149C0532R

WASHER

**

all 12/09/10

Location

Loc Qty

Loc Code

FP001

84

m135390

8

m136983

76

GA

42

116513

42

ST266

75

m136192

75

D3391-023

Manufactured

No

110

Each

0.0000

1

1

D3391-023

Mid Tube Assembly

D3391-025

Manufactured

No

110

Each

2.0000

1

1

D3391-025

Aft Tube Assembly

**

B158855 (1x) all 12/09/10

**

B164638 (1x) all 12/09/10

Location

Loc Qty

Loc Code

FG

1

147933

1

FG039

1

149928

1

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



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Start Date: 6/13/2017

Required Date: 6/15/2017

Start Qty: 1.00

Required Qty: 1.00

AN3C4A Purchased No 110 Each 1,226.000 24 24

AN3C4A

Bolt

**

see 12/09/16

Location Loc Qty Loc Code

FG 20

122814 20

FP001 771

M136450 23

M136740 8

M136986 20

M137075 43

M137164 2

M137361 675

OVER002 400

M137507 150

M137587 250

ST350 35

M135704 35

x 24

AN3C6A Purchased No 110 Each 219.0000 4 4

AN3C6A

Bolt

**

see 12/09/16

Location Loc Qty Loc Code

FG 10

122416 10

M138040

x4

FP001 4

m136295 4

OVER002 185

m136781 85

m137361 100

ST350 20

m128704 18

m132767 2

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Shop Packet Print

Page 3

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Start Date: 6/13/2017

Required Date: 6/15/2017

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0332R

Purchased

No

110

Each

5,191.000

28

28

NAS1149C0332R

WASHER

**

all 12/09/08

Location

Loc Qty

Loc Code

FP001

2350

m136741

46

m137381

2304

M138237

X28

GA

514

m133284

22

m136444

492

ST260a

2200

m135408

0

m135908

200

m136741

0

m137597

2000

ST266

127

m136643

127

D4095-041

Manufactured

No

110

Each

9.0000

1

1

D4095-041

Wearplate Fwd

**

B149218 (1x) all 12/09/08

Location

Loc Qty

Loc Code

FP002

9

149218

3

156390

2

159367

4

D4095-043

Manufactured

No

110

Each

6.0000

1

1

D4095-043

Wearplate Aft

**

B164603 (1x) all 12/09/08
B158921

Location

Loc Qty

Loc Code

FP002

6

158921

6

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				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

Picklist Print

Tuesday, May 23, 2017 10:55:40 AM

Page 5

Work Order ID: 161822

161822

Parent Item: D412-742-043

D412-742-043

Parent Item Name: Repl. Skidtube Fits LH or RH, High Gear, DART (Apical) Tri-Bag Float Comp.

Start Date: 6/13/2017

Required Date: 6/15/2017

Start Qty: 1.00

Required Qty: 1.00

D4095-045

Manufactured No

110

Each

11.0000

1

1

D4095-045

Wearplate Center

**

El 12/04/05

Location

Loc Qty

Loc Code

FP002

11

149289

1

154305

6

159875

4

x

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
☐ OTHER : _____					

D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

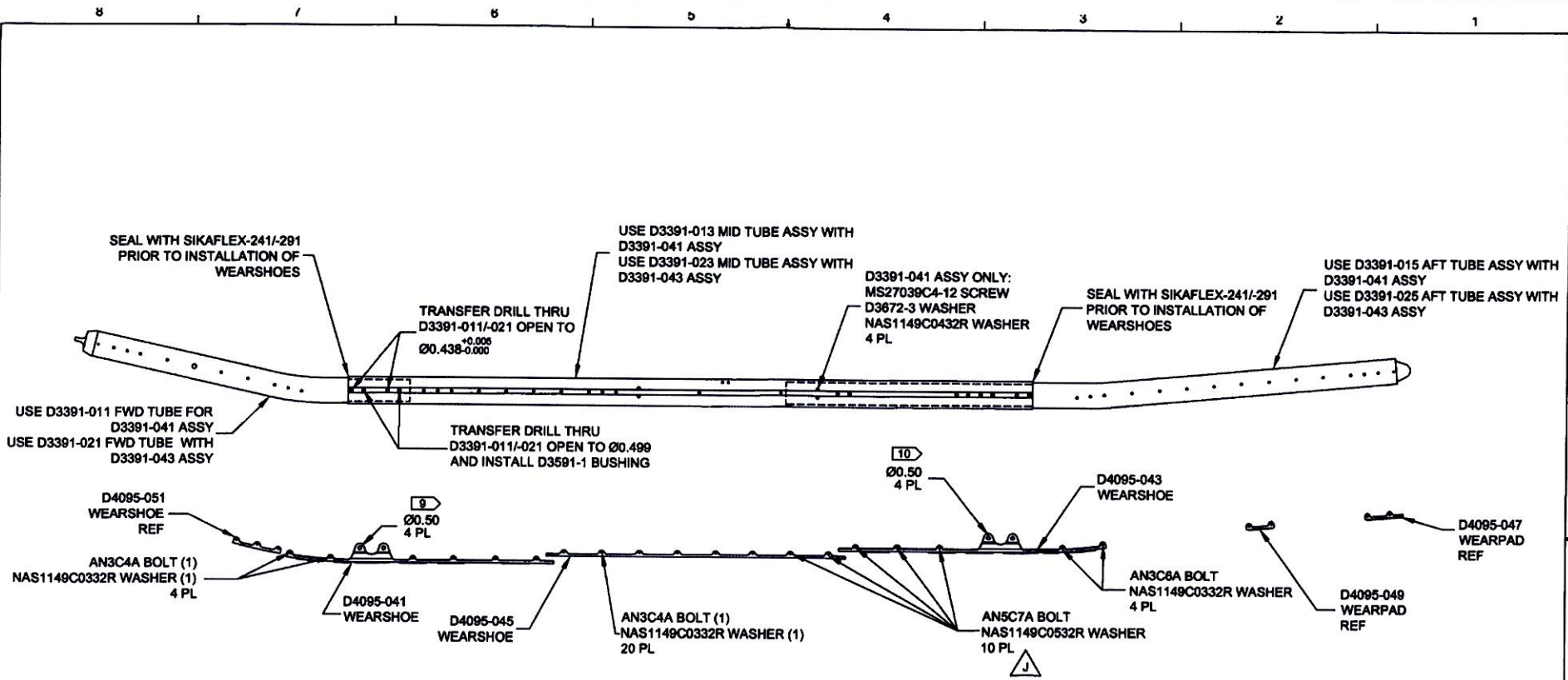
QTY -041	QTY -043	PART NUMBER	DESCRIPTION
X		D3391-041	FLOAT SKIDTUBE ASSEMBLY
	X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
	1	D3391-021	FWD TUBE ASSEMBLY
	1	D3391-023	MID TUBE ASSEMBLY
	1	D3391-025	AFT TUBE ASSEMBLY
2	2	D3591-1	BUSHING
4		D3672-3	WASHER
1	1	D4095-041	WEARSHOE
1	1	D4095-043	WEARSHOE
1	1	D4095-045	WEARSHOE
1	1	D4095-047	WEARPAD
1	1	D4095-049	WEARPAD
1	1	D4095-051	WEARSHOE
24	24	AN3C4A	BOLT
4	4	AN3C6A	BOLT
10	10	AN5C7A	BOLT
28	28	NAS1149C0332R	WASHER
10	10	NAS1149C0532R	WASHER
4		MS27039C4-12	SCREW
4		NAS1149C0432R	WASHER



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 161822
MAY 23 2017

J	INCORPORATED DSI 9733, REFORMAT DRAWING CHANGED CBORE DEPTH (ZN D2-8, D2-9), REVISED TABLES, REPLACED POWDER COAT WITH PAINT	ML	16.01.14
I	REMOVE GASKETS AND REPLACE ALL WEARSHOES; PARTS LIST UPDATE, ZN A8-1, ZN A8-2, ZN A8-4, ZN B6-8; LPS-3 COATING REMOVED FROM NOTE 2, ZN A3-1, ZN A3-2, REMOVED INSERT AELS-1032-130, ZN B6-4, B2-4, C7-8, C3-8; REMOVED HOLES, ZN D6-4 ZN D2-4, ZN D7-8, ZN D3-8	XDF	11.10.13
H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074)	AJS	06.08.20
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07
REV	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE USA, INC EUGENE, OR	
DRAWN	ML		
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	DP	D3391	SHEET 1 OF 11
APPROVED	DP	TITLE	SCALE
DE APPR.	DP	412 FLOAT SKIDTUBE	NTS
DATE	16.01.14	COPYRIGHT © 2006 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

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D3391-041/-043 ASSY

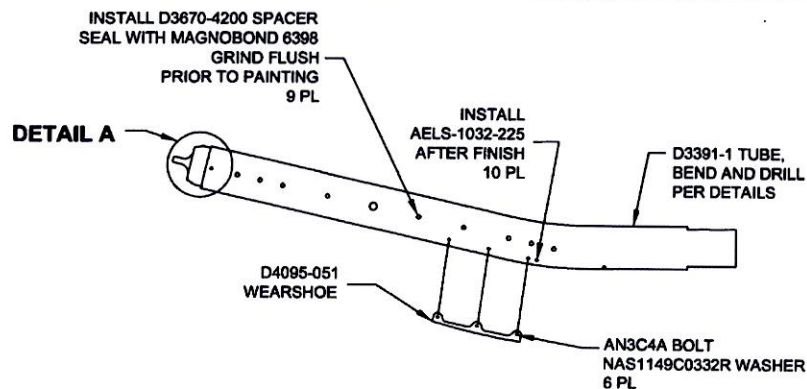


NOTES:

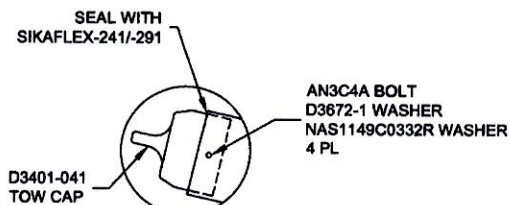
- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME PER DART QSI 005 4.2.1.3.3
PAINT WHITE PER DART QSI 005 4.2.2.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER DART QSI 044 6.6
- 7) WEIGHT: N/A
- 8) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 9) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL $\varnothing 0.50$ HOLES FROM SADDLE TO D4095-041
- 10) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL $\varnothing 0.50$ HOLES FROM SADDLE TO D4095-043

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2016-04-28

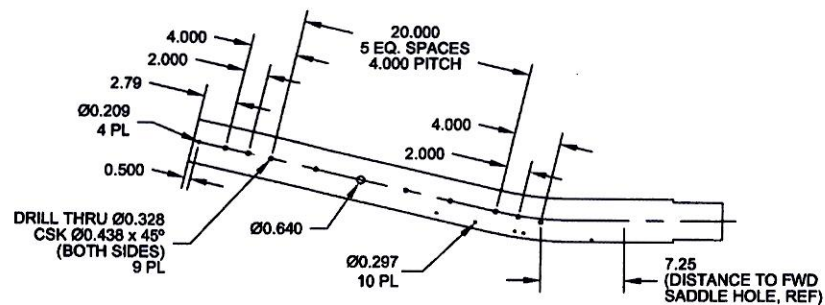
DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	DP	D3391	SHEET 2 OF 11
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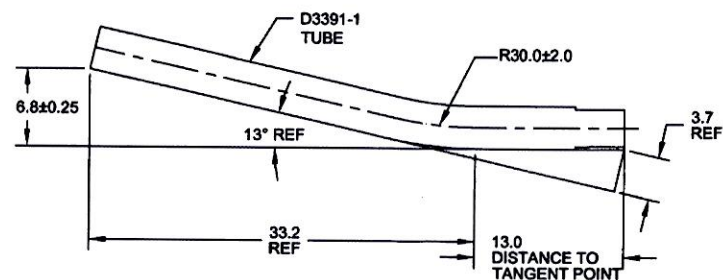
D3391-011 FWD TUBE ASSEMBLY
ASSEMBLY DETAIL



DETAIL A
SCALE 2X



D3391-011 DRILLING DETAIL



D3391-011 BENDING DETAIL
(MAKE FROM D3391-1)

D3391-011 FWD TUBE ASSEMBLY PARTS LIST

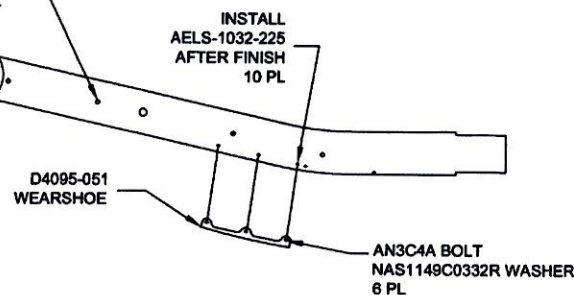
QTY -011	PART NUMBER	DESCRIPTION
X	D3391-011	FWD TUBE ASSEMBLY
1	D3391-1	TUBE
1	D3401-041	TOW CAP
9	D3670-4200	SPACER
4	D3672-1	WASHER
1	D4095-051	WEARSHOE
10	AELS-1032-225	INSERT
10	AN3C4A	BOLT
10	NAS1149C0332R	WASHER

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.		D3391	SHEET 3 OF 11
APPROVED		TITLE	SCALE
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INSTALL D3670-4200 SPACER
SEAL WITH MAGNOBOND 6398
GRIND FLUSH
PRIOR TO PAINTING
4 PL

DETAIL B



D3391-021 FWD TUBE ASSEMBLY
ASSEMBLY DETAIL

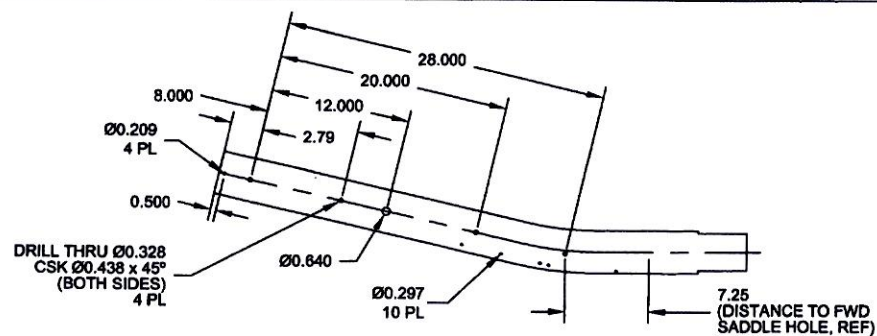
SEAL WITH
SIKAFLEX-241/-291

D3401-041
TOW CAP

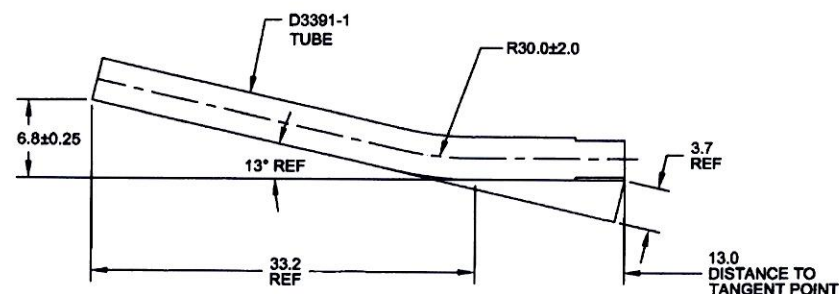
DETAIL B

SCALE 2X

AN3C4A BOLT
D3672-1 WASHER
NAS1149C0332R WASHER
4 PL



D3391-021 DRILLING DETAIL



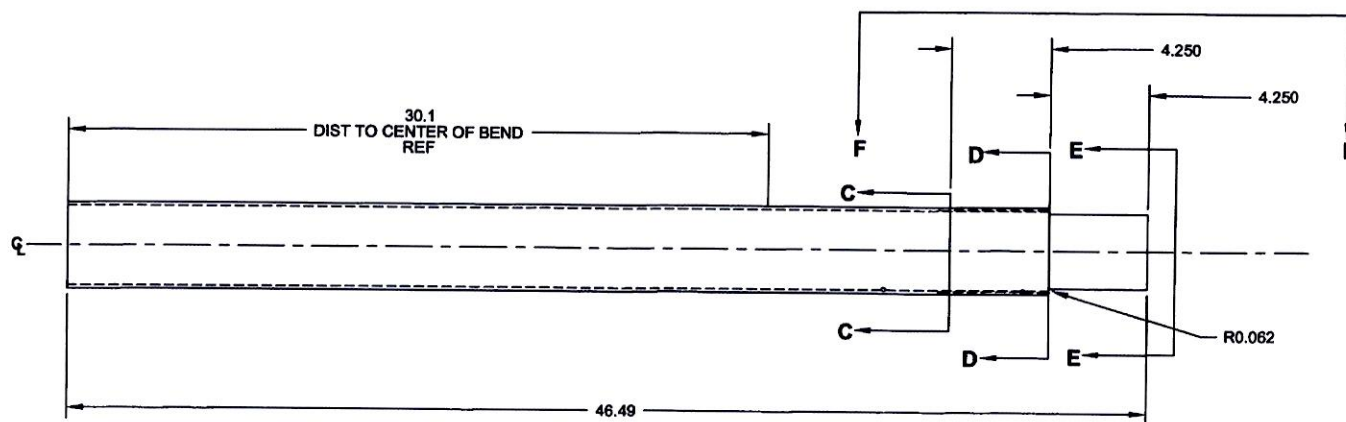
D3391-021 BENDING DETAIL
(MAKE FROM D3391-1)

D3391-021 FWD TUBE ASSEMBLY PARTS LIST

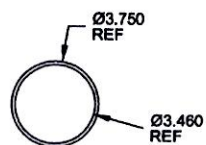
QTY	PART NUMBER	DESCRIPTION
X	D3391-021	FWD TUBE ASSEMBLY
1	D3391-1	TUBE
1	D3401-041	TOW CAP
4	D3670-4200	SPACER
4	D3672-1	WASHER
1	D4095-051	WEARSHOE
10	AELS-1032-225	INSERT
10	AN3C4A	BOLT
10	NAS1149C0332R	WASHER

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2016-04-28

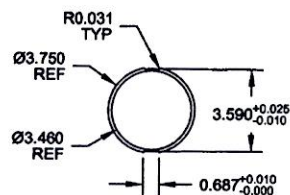
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CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	DP	D3391	SHEET 4 OF 11
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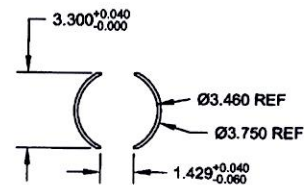
D3391-1 TUBE
(MAKE FROM D8013-047 SKIDTUBE MATERIAL)



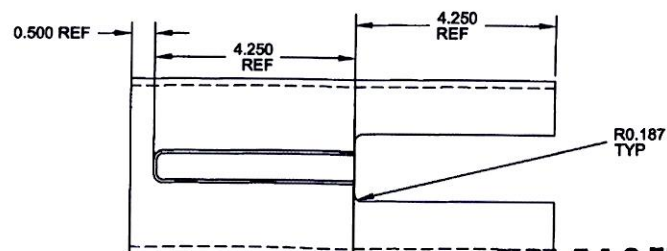
SECTION C-C



SECTION D-D



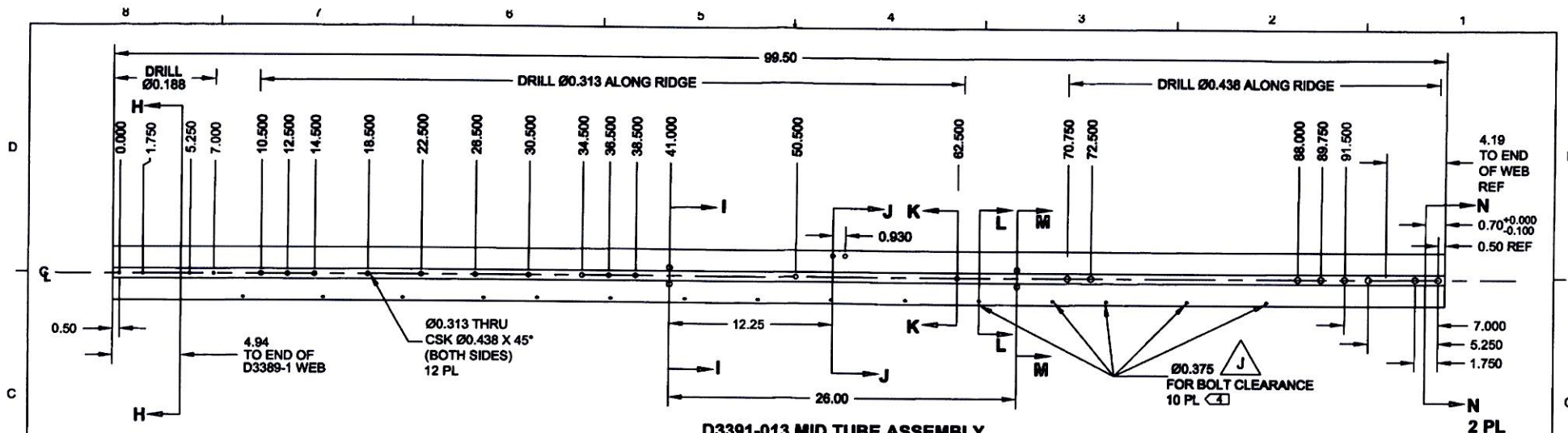
SECTION E-E



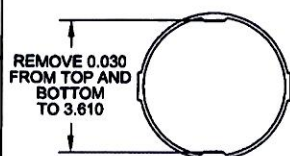
VIEW F-F
SCALE 2X

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2016-04-28

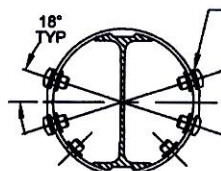
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MFG. APPR.		D3391	SHEET 5 OF 11
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D3391-013 MID TUBE ASSEMBLY

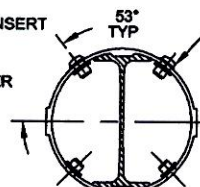


SECTION H-H
SCALE 2X



SECTION I-I
SCALE 2X

DRILL Ø0.391
INSTALL ALS4-428-165 INSERT
MS27039C4-08 SCREW
D3672-3 WASHER
NAS1149C0432R WASHER
AFTER FINISH
4 PL



SECTION J-J
SCALE 2X

DRILL Ø0.297
INSTALL AELS-1032-130 INSERT
MS27039C1-09 SCREW
D3672-1 WASHER
NAS1149C0332R WASHER
AFTER FINISH
4 PL



SECTION K-K
SCALE 2X

WELD INTO PLACE
& GRIND FLUSH
(BOTH ENDS)
12 PL

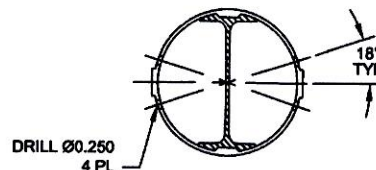
DRILL Ø0.297
INSTALL AELS-1032-130 INSERT
AFTER FINISH
TYP



SECTION L-L
SCALE 2X

D3391-013 MID TUBE ASSEMBLY PARTS LIST

QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW
4	NAS1149C0332R	WASHER
4	NAS1149C0432R	WASHER

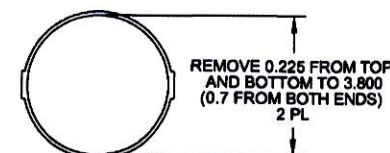


SECTION M-M
SCALE 2X



D3391-013 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004
- 4) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBOR AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.

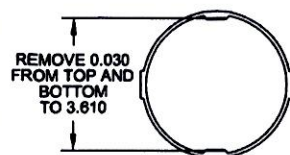
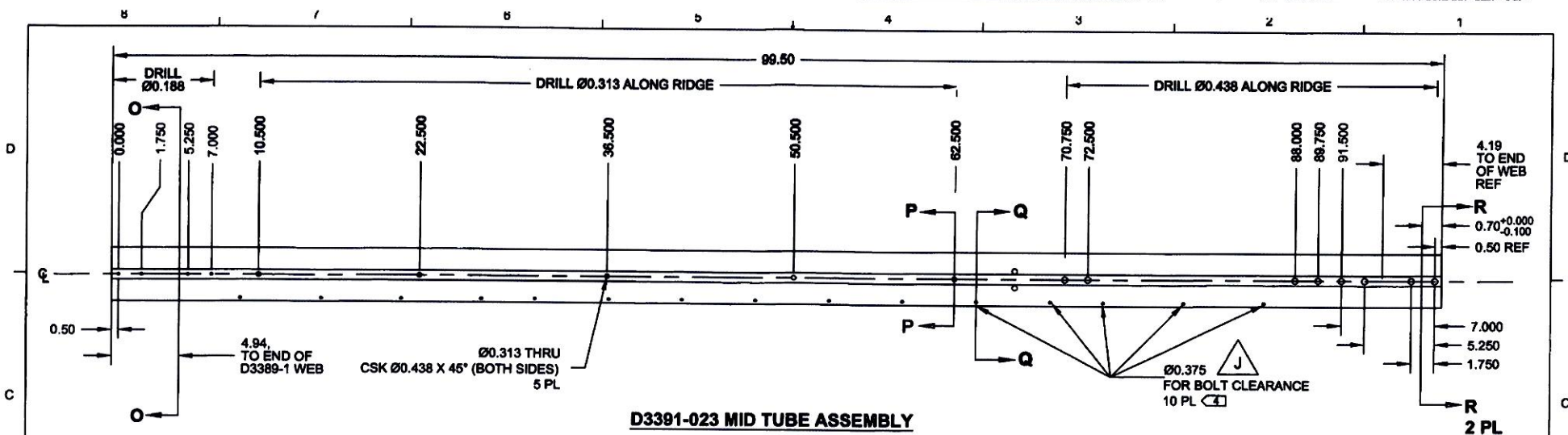


SECTION N-N
SCALE 2X

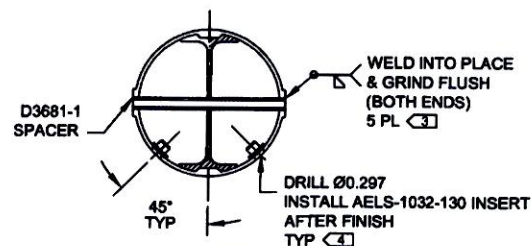
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DRAWN	ML
CHECKED	CP
MFG. APPR.	
APPROVED	
DE APPR.	
DATE	16.01.14

DART AEROSPACE USA, INC EUGENE, OR	
DRAWING NO. D3391	REV. J SHEET 8 OF 11
TITLE 412 FLOAT SKIDTUBE	SCALE NTS
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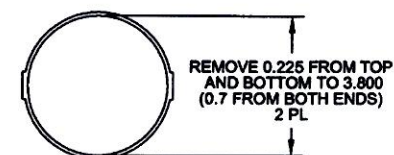
SECTION O-O
SCALE 2X



SECTION P-P
SCALE 2X



SECTION Q-Q
SCALE 2X



SECTION R-R
SCALE 2X

D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY -023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

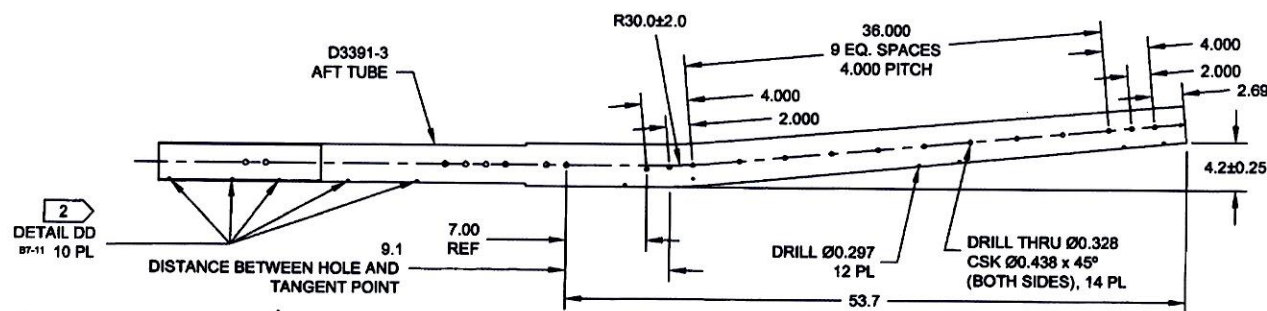
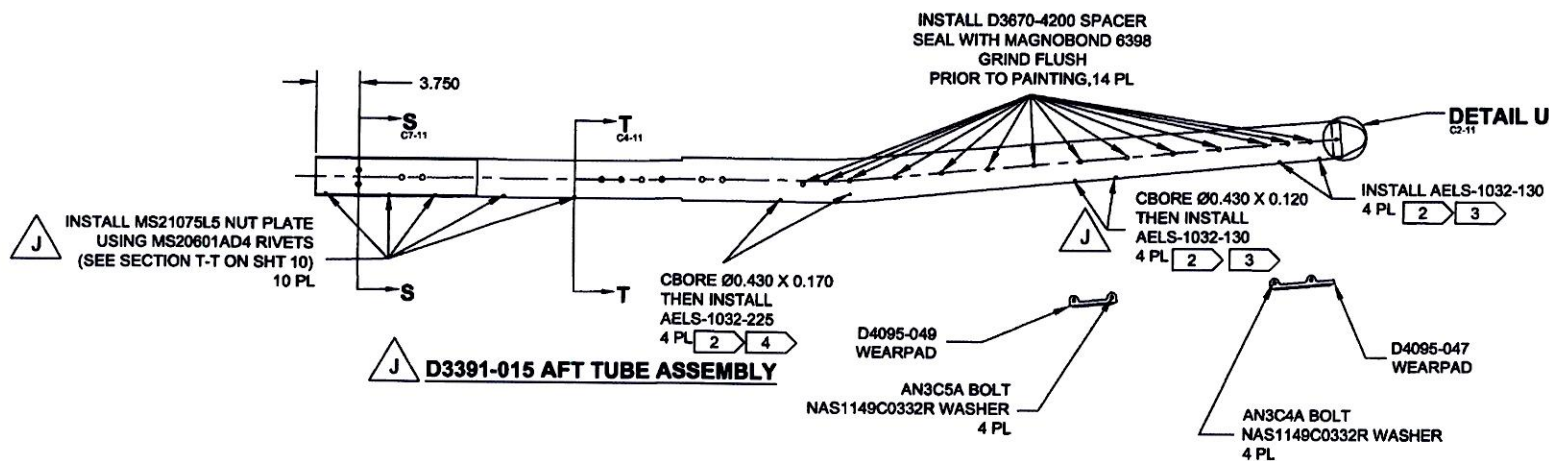


D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004
- 4) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. BORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.		D3391	SHEET 7 OF 11
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	16.01.14	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC	

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2016-04-28



D3391-015 AFT TUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
X	D3391-015	AFT TUBE ASSEMBLY
1	D2646	AFT CAP
1	D3391-3	AFT TUBE
14	D3670-4200	SPACER
2	D3672-1	WASHER
1	D4095-049	WEARPAD
1	D4095-047	WEARPAD
8	AELS-1032-130	INSERT
4	AELS-1032-225	INSERT
4	ALS4-428-165	INSERT
6	AN3C4A	BOLT
4	AN3C5A	BOLT
20	MS20601AD4	RIVET, BLIND
10	MS21075L5	NUT PLATE, FLOATING
10	NAS1149C0332R	WASHER

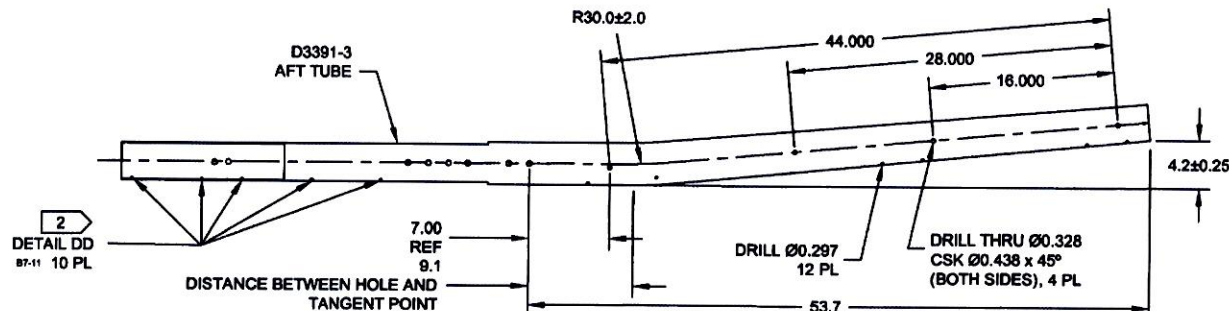
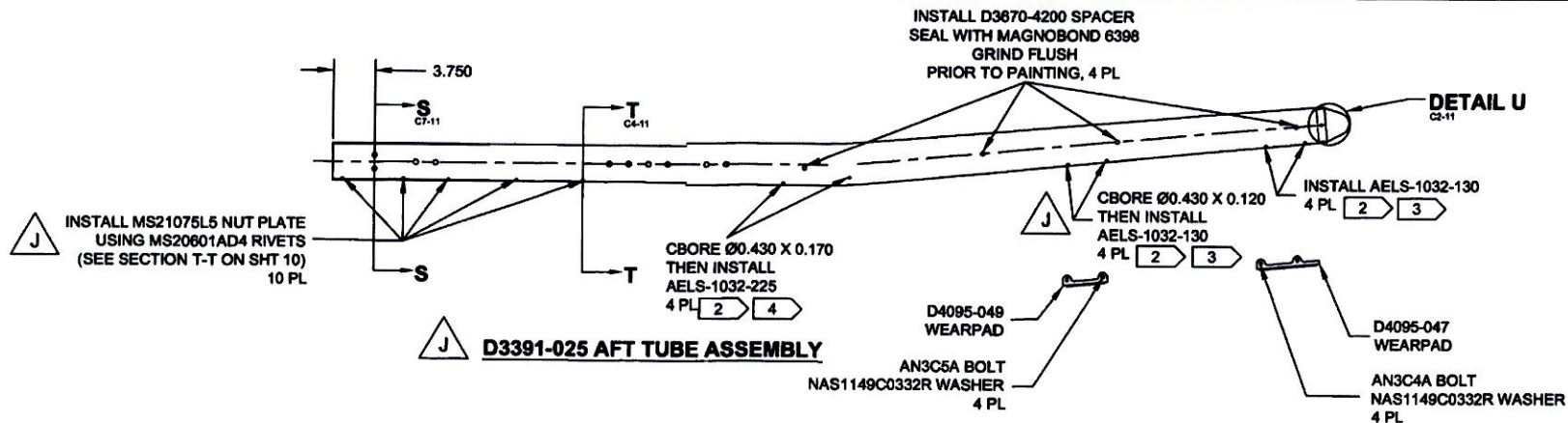
NOTES:

- 1) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 2) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.
- 3) ENSURE WALL THICKNESS IS BETWEEN 0.070 AND 0.130 BEFORE INSTALLING INSERT
- 4) ENSURE WALL THICKNESS IS BETWEEN 0.130 AND 0.225 BEFORE INSTALLING INSERT

BENDING AND DRILLING DETAIL

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CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	<i>SP</i>	D3391	SHEET 8 OF 11
APPROVED	<i>Ben</i>	TITLE	SCALE
DE APPR.	<i>#</i>	412 FLOAT SKIDTUBE	NTS
DATE	16.01.14	COPYRIGHT © 2006 BY DART AEROSPACE USA, INC THIS DOCUMENT IS FINITE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



D3391-025 AFT TUBE ASSEMBLY PARTS LIST

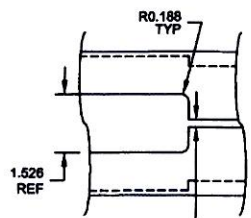
QTY	PART NUMBER	DESCRIPTION
X	D3391-025	AFT TUBE ASSEMBLY
1	D2646	AFT CAP
1	D3391-3	AFT TUBE
4	D3670-4200	SPACER
2	D3672-1	WASHER
1	D4095-049	WEARPAD
1	D4095-047	WEARPAD
8	AELS-1032-130	INSERT
4	AELS-1032-225	INSERT
6	AN3C4A	BOLT
4	AN3C5A	BOLT
20	MS20601AD4	RIVET, BLIND
10	MS21075L5	NUT PLATE FLOATING
10	NAS1149C0332R	WASHER

NOTES:

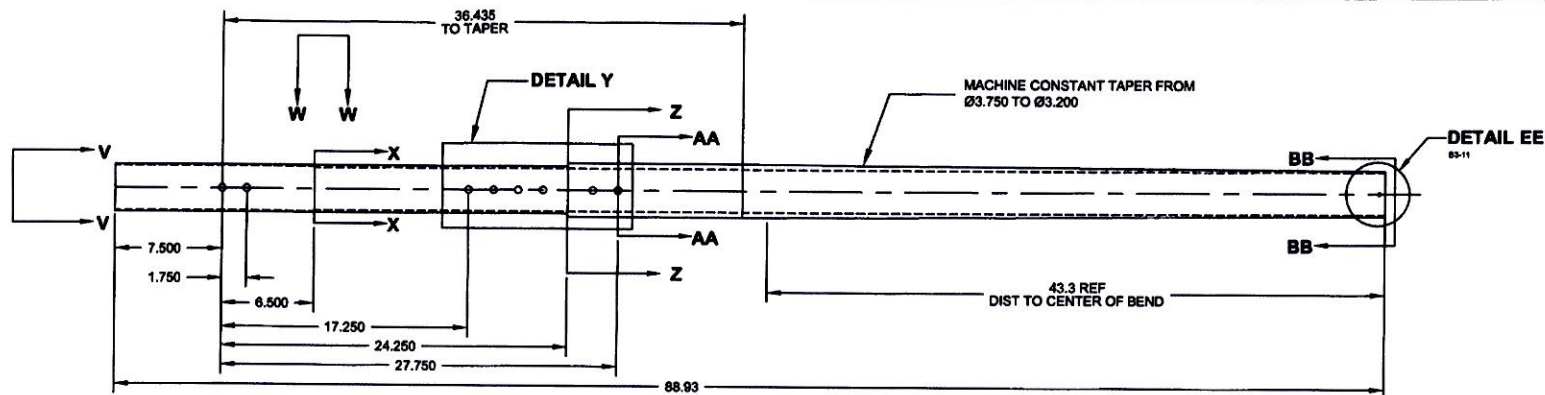
- 1) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 2) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED. USE NUT PLATE DRILL JIG IF REQUIRED.
- 3) ENSURE WALL THICKNESS IS BETWEEN 0.070 AND 0.130 BEFORE INSTALLING INSERT
- 4) ENSURE WALL THICKNESS IS BETWEEN 0.130 AND 0.225 BEFORE INSTALLING INSERT

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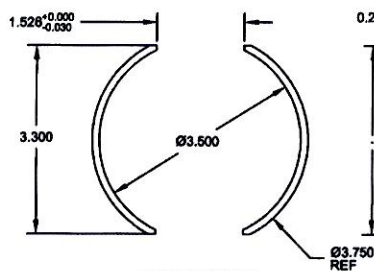
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CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	CP	D3391	SHEET 9 OF 11
APPROVED	CP	TITLE	SCALE
DE APPR.	CP	AFT TUBE ASSEMBLY	NTS
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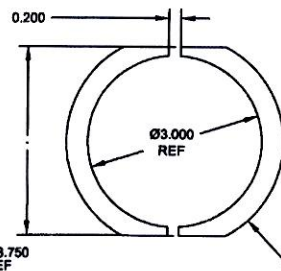
VIEW W-W
SCALE 4X



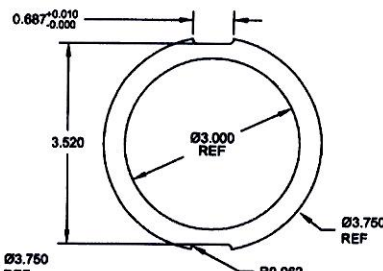
D3391-3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D8014-000)



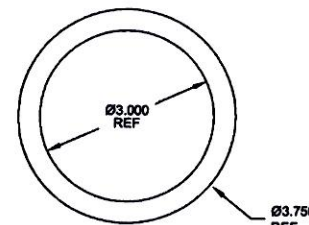
SECTION V-V
SCALE 4X



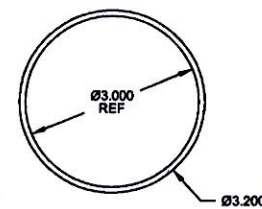
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SCALE 4X



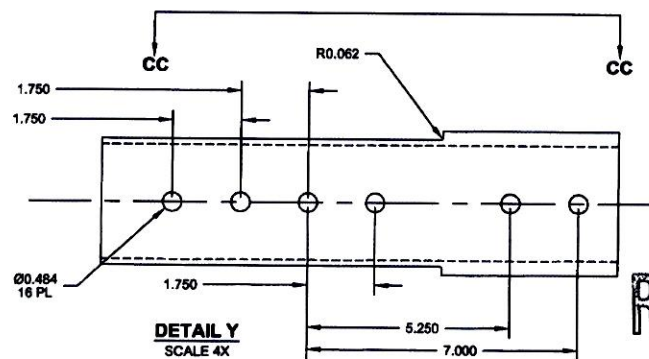
SECTION Z-Z
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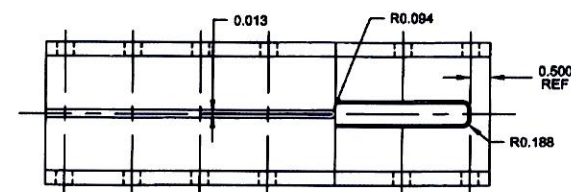
SECTION AA-AA
SCALE 4X



SECTION BB-BB
SCALE 4X



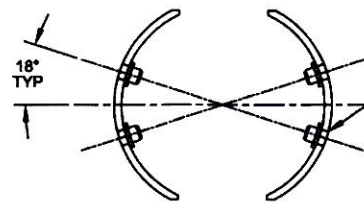
DETAIL Y
SCALE 4X



VIEW CC-CC

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APPROVED	DEF	TITLE	SCALE
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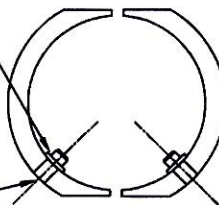


SECTION S-S
SCALE 5X

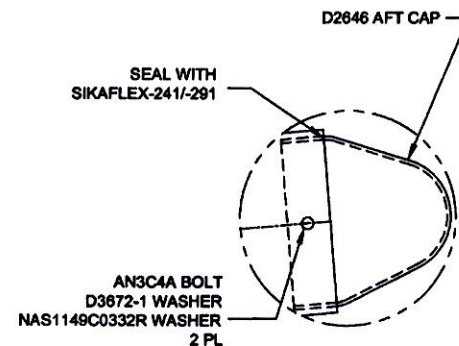
DRILL Ø0.391
CBORE Ø0.516 X 0.040 DEEP
INSTALL ALS4-428-165 INSERT
4 PL

USE DT8217 DRILL TEMPLATE
TO LOCATE HOLES AND OPEN
TO Ø0.375

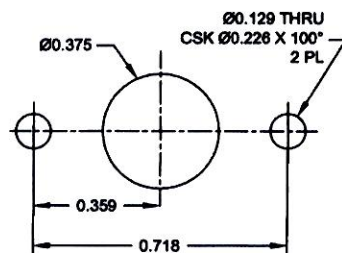
MS21075L5 NUTPLATE
REF



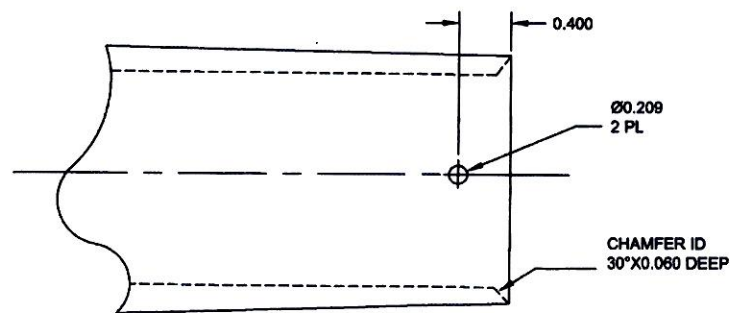
SECTION T-T
SCALE 5X
5 PL



DETAIL U
SCALE 5X



DRILLING DETAIL DD
SCALE 10X



DETAIL EE
SCALE 2X

NOTES:
1) USE INDUSTRY STANDARD NUT PLATE DRILL JIG IF REQUIRED.

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CHECKED	CP	DRAWING NO.	REV.
MFG. APPR.	YR	D3391	SHEET 11 OF 11
APPROVED	AN	TITLE	SCALE
DE APPR.	CH	AFT TUBE ASSEMBLY	NT
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